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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/210,055	12/11/1998	JOHN DAVID MILLER	884.055US1	6122

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SCHWEGMAN, LUNDBERG, WOESSNER & KLUTH, P.A.
P.O. BOX 2938
MINNEAPOLIS, MN 55402

EXAMINER

HAVAN, THU THAO

ART UNIT PAPER NUMBER

2672

DATE MAILED: 12/10/2003

25

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary

Application No.

09/210,055

Applicant(s)

MILLER, JOHN DAVID

Examiner

Thu-Thao Havan

Art Unit

2672

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 April 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 20,22,24,26,28,32,34 and 37 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 20,22,24,26,28,32,34 and 37 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Response to Arguments

Applicant's arguments with respect to claims 20, 22, 24, 26, 28, 32, 34, and 37 have been considered but are moot in view of the new ground(s) of rejection.

Drawings

The drawings in this application are approved by the Draftsperson.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

Claims **20, 22, 24, 26, 28, 32, 34, and 37** are rejected under 35 U.S.C. 102(e) as being unpatentable by Watanabe et al. (US Patent No. 6,329,988).

Re claim **20**, Watanabe teaches selecting a mode, the mode is FRONT-ONLY, BOTH_SIDES, or BACK_ONLY, determining a viewing angle, determining an object angle, calculating a theta, theta equals the viewing angle minus the object angle plus pi, assigning a function of theta to alpha, if the mode is FRONT_ONLY or BOTH_SIDES, assigning a function of theta minus pi to alpha, if the mode is BACK_ONLY (col.3, line 35 to col. 6, line 29); comparing alpha to zero, assigning zero to alpha, if the mode is

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FRONT_ONLY and alpha is less than zero, assigning zero to alpha, if the mode is BACK_ONLY, and alpha less than zero, assigning minus alpha to alpha, if the mode is BOTH_SIDES, and alpha is less than zero (col. 4, line 57 to col. 5, line 44); and assigning a transparency factor to alpha (col. 1, line 63 to col. 2, line 8; col. 3, lines 35-53). In other words, Watanabe discloses a picture-drawing method developed taking indirect reflection from a ground surface to an object. This picture-drawing method comprises a step of previously storing a diffuse reflection quantity, an object surface receives from the ground surface, in relation to an angle made between a unit normal vector of the object surface and a unit normal vector of the ground surface in the form of a table in a manner of using the quantity of light emitted from a ground light source regarded as existing on the ground surface, the atmospheric damping coefficient, the distance between the object and the ground surface and others as parameters, a step of obtaining the whole diffuse reflection quantity, the object surface receives from the ground surface over the range of the angle of 0 to π , from the table through the designation of one of the parameters so that the object develops its own color on the basis of the whole diffuse reflection quantity, an object diffuse reflection coefficient and the light quantity from the ground light source, which is one of the parameters, and a step of developing the color of the ground light source on the object on the basis of the whole diffuse reflection quantity and the light quantity from the ground light source. In that he also teaches by taking the indirect reflection coming from the ground surface to the object into consideration, a more realistic three-dimensional feeling on the object is feasible. The diffuse reflection quantity the object surface receives greatly varies in

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accordance with the angle θ made between the normal vector of the object surface and the normal vector of the ground surface. The angle θ is usually 0 to π , and $\theta=0$ signifies the case that the object surface is at a position opposite to the ground surface so that it does not receive the indirect reflection at all, whereas $\theta=\pi$ means the case that the object surface is in a parallel and opposed relation to the ground surface so that it is in the most bright condition. Although the quantity of light emitted from the ground light source regarded as existing on the ground surface is a function of θ because of varying the angle between the optical axis and the emission direction, usually, a constant value is used as that light quantity. As the light quantity from the ground light source increases, the diffuse reflection quantity also increases. On the contrary, as the light quantity decreases, the diffuse reflection quantity also decreases.

Re claims **22, 26, and 32**, Watanabe discloses identifying a vector normal to a viewing surface and incident at an object having an object surface, the vector creating an angle of incidence at the object surface (col. 7, line 25 to col. 10, line 36; fig. 3), and modulating the transparency of an image of the object as a function of the angle of incidence of the vector at the object surface (col. 3, lines 35-53; col. 1, line 63 to col. 2, line 8), wherein the function comprises a cosine function (col. 7, line 25 to col. 8, line 44; fig. 3). In other words, Watanabe discloses a picture-drawing method developed taking indirect reflection from a ground surface to an object. This picture-drawing method comprises a step of previously storing a diffuse reflection quantity, an object surface receives from the ground surface, in relation to an angle made between a unit normal vector of the object surface and a unit normal vector of the ground surface in the form of

a table in a manner of using the quantity of light emitted from a ground light source regarded as existing on the ground surface, the atmospheric damping coefficient, the distance between the object and the ground surface and others as parameters, a step of obtaining the whole diffuse reflection quantity, the object surface receives from the ground surface over the range of the angle of 0 to π , from the table through the designation of one of the parameters so that the object develops its own color on the basis of the whole diffuse reflection quantity, an object diffuse reflection coefficient and the light quantity from the ground light source, which is one of the parameters, and a step of developing the color of the ground light source on the object on the basis of the whole diffuse reflection quantity and the light quantity from the ground light source. Furthermore, the cosine is part of the calculation for the picture-drawing method.

Re claims **24, 28, 34, and 37**, the limitation of claims 24, 28, 34, and 37 are identical to claims 22, 26, and 32 above. Therefore, claim 26 is treated with respect to grounds as set forth for claims 22, 26, and 32 above except for the function comprises a non-linear function (col. 10, line 37 to col. 12, line 60; fig. 4). In other words, Watanabe discloses a non-linear function when he discloses the matrix consisting of the lookup table without the necessary for calculation. In that he conducts graphics processing according to geometric data constituting a three-dimensional configuration is emitted from an application to a geometry engine.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Stam, US patent no. 6,246,416

Obata, US patent no. 5,222,203

Inquiries

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thu-Thao Havan whose telephone number is (703) 308-7062. The examiner can normally be reached on Monday to Thursday from 9:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Razavi can be reached on (703) 305-4713.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

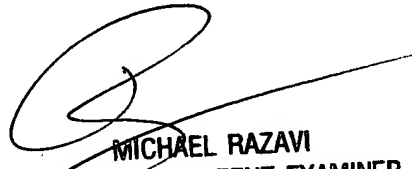
or faxed to:

(703) 872-9314 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

Thu-Thao Havan
December 1, 2003


MICHAEL RAZAVI
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600